

The U.S. Environmental Protection Agency (EPA) and Wisconsin Department of Natural Resources (DNR) require drinking water utilities to provide an annual Consumer Confidence Report to inform you of the source and quality of your drinking water, compliance and detected contaminants, and results from treating and monitoring water January 1 – December 31, 2015.

### Important Information

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

### Informacion Importante para nuestros clientes que hablan español

Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

### Lug tseem ceeb rua cov siv dlej kws has lug Moob

Ntawm nuav yog cov lug tseem ceeb qha txug kev haus dlej nyob nroog Milwaukee. Yog mej nyeem tsi tau cov lug nuav, thov lwm tug txhais rua mej.

### Item 1: Water System Information

If you have questions about this report, please call a Water Quality Representative at the Milwaukee Water Works, (414) 286-2585.

Participate in decisions that affect drinking water quality at meetings of the City of Milwaukee Common Council Public Works Committee which meets at 9:00 a.m. the first Wednesday of each month in the Milwaukee City Hall, Room 301B, 200 East Wells Street, Milwaukee, WI 53202, and at meetings of the City of Milwaukee Common Council, which meets in the Milwaukee City Hall, 3<sup>rd</sup> Floor Common Council Chambers, 200 East Wells Street, Milwaukee, WI 53202. The Common Council's meeting dates vary. Please contact the City Clerk for a schedule at (414) 286-2221, or visit [milwaukee.gov/cityclerk/PublicRecords/Agendas](http://milwaukee.gov/cityclerk/PublicRecords/Agendas).

### Item 2: Source of Water

Milwaukee's water source is surface water from Lake Michigan.

### Item 3: Definitions

<	"less than" or not detected
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirement that a water system must follow. Action Levels are reported at the 90 <sup>th</sup> percentile for homes at greatest risk.
Haloacetic Acids	HAA5: Monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, dibromoacetic acid, tribromoacetic acid, bromochloroacetic acid, dibromochloroacetic acid, and bromodichloroacetic acid.
HA	Health Advisory: An estimate of acceptable drinking water levels for a chemical substance based on health effects information; a Health Advisory is not a legally enforceable federal standard, but serves as technical guidance to assist federal, state and local officials.
Median	The middle value of the entire data set for the parameter (range from high to low)
µg/L	Microgram per liter or parts per billion
MCL	Maximum Contaminant Level: The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

<b>MRDL</b>	Maximum residual disinfectant level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
<b>MRDLG</b>	Maximum residual disinfectant level goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
<b>mg/L</b>	Milligram per liter or parts per million
<b>NA</b>	Not Applicable
<b>NR</b>	Not Regulated
<b>NTU</b>	Nephelometric Turbidity Unit: A unit to measure turbidity.
<b>pCi/L</b>	Picocuries per Liter: A measure of radioactivity. A picocurie is $10^{-12}$ curies.
<b>RAA</b>	Running Annual Average: The average of four quarterly samples collected in one 12-month period.
<b>TT</b>	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water
<b>Trihalomethanes</b>	TTHMs: Chloroform, bromodichloromethane, dibromochloromethane, and bromoform
<b>Turbidity</b>	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. For 2015, the highest combined filter effluent value detected or Maximum Value was 0.21 NTU and < 0.3 NTU 100% of the time.

#### Item 4: Detected Contaminants

The table below shows the regulated contaminants detected in Milwaukee's drinking water during 2015. It also includes any detected contaminants found in the recently completed (2013) Unregulated Contaminant Monitoring Rule – Phase 3 (UCMR-3) mandatory monitoring program. **All contaminant levels are within applicable state and federal laws.** The table contains the name of each contaminant, the highest level regulated (Maximum Contaminant Level, or MCL), the ideal goals for public health (Maximum Contaminant Level Goal, or MCLG), the median value detected, the usual sources of such contamination, and footnotes explaining the findings and units of measurement. The presence of a substance in drinking water does not necessarily indicate the water poses a health risk. Certain quantities of some substances are essential to good health, but excessive quantities can be hazardous.

Substance	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Median Value	Highest Level Detected	Source(s) of Contaminant	Meets Standard
Aluminum	0.2 mg/L	NR	0.046 mg/L	0.117 mg/L	Water treatment additive; Natural deposits	NR
Barium	2 mg/L	2 mg/L	0.018 mg/L	0.018 mg/L	Natural deposits	✓
Bromate	10 µg/L	10 µg/L (RAA)	< 3 µg/L (RAA)	5.4 µg/L	Byproduct of drinking water disinfection	✓
Bromochloroacetic acid	NA	Regulated as a group (HAA5)	< 1 µg/L	2.0 µg/L	Byproduct of drinking water disinfection	✓
Bromodichloroacetic acid	NA	Regulated as a group (HAA5)	1.2 µg/L	1.8 µg/L	Byproduct of drinking water disinfection	✓
Bromodichloro-methane	NA	Regulated as a group (TTHMs)	3.0 µg/L	4.0 µg/L	Byproduct of drinking water disinfection	✓
Chlorate**	NA	NR	68 µg/L	195 µg/L	Byproduct of drinking water disinfection	NR
Chloride	250 mg/L	NR	13.5 mg/L	14.0 mg/L	Natural deposits and road salt	NR
Chlorine, total	4 mg/L	4 mg/L	1.48 mg/L	2.03 mg/L	Residual of drinking water disinfection	✓
Chlorite	0.8 mg/L	1.0 mg/L	0.002 mg/L	0.0099 mg/L	Byproduct of drinking water disinfection	✓
Chloroform	NA	Regulated as a group (TTHMs)	2.0 µg/L	3.0 µg/L	Byproduct of drinking water disinfection	✓
Chromium, Hexavalent**	NA	NR	0.20 µg/L	0.25 µg/L	Natural deposits and manufacturing	NR
Chromium, Total**	NA	100 µg/L	0.3 µg/L	0.3 µg/L	Natural deposits and manufacturing	✓
Copper	1.3 mg/L	1.3 mg/L (AL)	0.041 mg/L (AL)	NR	Corrosion of household plumbing systems	✓

Substance	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Median Value	Highest Level Detected	Source(s) of Contaminant	Meets Standard
Dibromodichloro-methane	NA	Regulated as a group (TTHMs)	2.0 µg/L	3.0 µg/L	Byproduct of drinking water disinfection	✓
Dichloroacetic acid	NA	Regulated as a group (HAA5)	1.0 µg/L	2.0 µg/L	Byproduct of drinking water disinfection	✓
Fluoride	4 mg/L	4 mg/L	0.54 mg/L	0.60 mg/L	Water treatment additive; natural deposits	✓
Gross Alpha particles	Zero	15 pCi/L	1.86 pCi/L	3.42 pCi/L	Natural deposits	✓
Gross Beta particles	Zero	50 pCi/L	3.9 pCi/L	4.0 pCi/L	Natural deposits	✓
Haloacetic Acids, total	NA	60 µg/L	2.0 µg/L	8.0 µg/L	Byproduct of drinking water disinfection	✓
Heterotrophic Plate Count Bacteria	NA	TT	Met Requirement	Met Requirement	Naturally present in the environment	✓
Iron	0.30 mg/L	NR	0.004 mg/L	0.038 mg/L	Natural deposits	NR
Lead	Zero	15 µg/L (AL)	10.0 µg/L (AL)	NR	Corrosion of household plumbing systems	✓
Molybdenum**	NA	NR	1.0 µg/L	1.1 µg/L	Natural deposits	NR
Nitrate, as N	10.0 mg/L	10.0 mg/L	0.30 mg/L	0.30 mg/L	Natural deposits and farm run-off	✓
Perchlorate (UCMR -1 Contaminant)	NA	Regulation Pending	0.10 µg/L	0.10 µg/L	Byproduct of drinking water disinfection	NR
pH	NA	6.5 to 8.5	7.63	7.88	Naturally present in the environment	✓
Radium, combined 226 + 228	Zero	5 pCi/L	1.20 pCi/L	1.51 pCi/L	Natural deposits	✓
Strontium**	NA	NR	120 µg/L	120 µg/L	Natural deposits	NR
Sulfate	500 mg/L	NR	28.7 mg/L	32.8 mg/L	Natural deposits	NR
Total Dissolved Solids	500	NR	179 mg/L	206 mg/L	Natural deposits	NR
Trichloroacetic acid	NA	Regulated as a group (HAA5)	< 0.5 µg/L	1.0 µg/L	Byproduct of drinking water disinfection	✓
Trihalomethanes, total	NA	80 µg/L	7.0 µg/L	10.0 µg/L	Byproduct of drinking water disinfection	✓
Turbidity	NA	<0.3 NTU 95% of the time	0.03 NTU 95% of the time	0.21 NTU 1-day max	Natural deposits	✓
Uranium, total	Zero	30 µg/L	0.23 µg/L	0.25 µg/L	Natural deposits	✓
Vanadium**	NA	NR	0.3 µg/L	0.3 µg/L	Natural deposits	NR

**\*\*Data from 2013, the most recent UCMR sampling period**

#### **Item 5: Information on monitoring for *Cryptosporidium*, Radon, and Other Contaminants (if detected)**

*Cryptosporidium* was not detected in any of 24 source water samples during 2015. There were no detections of *Cryptosporidium* in the finished water in 2015.

The Milwaukee Water Works is recognized as a national leader in providing safe, high-quality drinking water that complies with all state and federal drinking water standards. In addition, MWW is known for its extensive water quality monitoring program that goes well above and beyond basic requirements. This monitoring and screening program includes organisms and substances that are not yet regulated, but considered of emerging concern and/or under study for possible effects on public health.

The table below shows the unregulated substances detected in Milwaukee’s drinking water during 2015. **There is no known adverse health effect from these substances in drinking water at these levels.** The complete list of over 500 substances tested for can be found at [milwaukee.gov/water/about/WaterQuality](http://milwaukee.gov/water/about/WaterQuality).

Substance	Range of Values Detected
Aldehydes, Total	< 0.5 - 7.2 µg/L
Ammonia <sup>1</sup> , as N	0.33 - 0.54 µg/L
Boron <sup>2</sup>	0.025 µg/L
Bromide	0.017 - 0.041 mg/L
Bromochloroacetonitrile	0.5 - 1.0 µg/L
Calcium	34 mg/L
Chloropicrin	< 0.5 - 1.4 µg/L
Dibromoacetonitrile	0.7 - 1.3 µg/L
Dichloroacetonitrile	< 0.5 - 0.9 µg/L
Dichloropropanone	< 0.5 - 0.5 µg/L
Erucylamide	6.8 µg/L
Gallium	0.001 mg/L
Isophorone <sup>3</sup>	0.12 µg/L
Lithium	2.3 µg/L
Magnesium	12 mg/L
Magnesium Hardness	43 - 60 mg/L
Phosphate, as PO4	1.82 - 2.39 mg/L
Potassium	1.4 - 1.7 mg/L
Rubidium	1.1 µg/L
Silica	1.95 - 2.0 mg/L
Sodium	9.5 - 14.4 mg/L
Total Organic Carbon	1.2 - 1.4 mg/L
Trichloropropanone	< 0.5 - 0.6 µg/L

#### Definitions

< “less than” or not detected

**HA** Health Advisory: An estimate of acceptable drinking water levels for a chemical substance based on health effects information; a Health Advisory is not a legally enforceable federal standard, but serves as technical guidance to assist federal, state and local officials.

**µg/L** microgram per liter or parts per billion

**mg/L** milligram per liter or parts per million

<sup>1</sup>Ammonia has a lifetime HA of 30 mg/L

<sup>2</sup>Boron has a lifetime HA of 6 mg/L

<sup>3</sup>Isophorone has a lifetime HA of 100 µg/L

## **Item 6: Compliance with Other Drinking Water Regulations**

Milwaukee Water Works had one monitoring violation, or Notice of Non-Compliance, of the Safe Drinking Water Act in 2015; the First QTR Disinfection By-Products compliance monitoring samples were collected one day early, outside the designated compliance sample collection window. A Tier 3 Public Notification was issued on September 5, 2015.

## **Item 7: Variances and Exemptions (not applicable)**

## **Item 8: Required Educational Information**

As water flows through rivers and lakes and over land surfaces, naturally occurring substances may be dissolved in the water that reaches Lake Michigan. These substances are referred to as contaminants. Surface water sources may be highly susceptible to contaminants. Surface water is also affected by animal and human activities. Read the DNR Source Water Assessment for Milwaukee at [milwaukee.gov/water/about/WaterQuality.htm](http://milwaukee.gov/water/about/WaterQuality.htm). Contaminants that may be present in source water include microbial contaminants such as viruses, protozoa and bacteria; inorganic contaminants such as salts and metals, pesticides and herbicides, organic chemical contaminants, and radioactive contaminants.

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline, 800-426-4791. The table of contaminants detected by the Milwaukee Water Works is on pages 2-4 of this report.

## **Health Precautions**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking tap water from their health care providers. EPA/ Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791, and the CDC at [cdc.gov/parasites/crypto](http://cdc.gov/parasites/crypto).

## ***Cryptosporidium***

*Cryptosporidium* is a microscopic protozoan that when ingested, can result in diarrhea, fever, and other gastrointestinal symptoms. In collaboration with the Milwaukee Health Department, we consider *Cryptosporidium* detection a priority, and since 1993, we have continued to test source and treated water for *Cryptosporidium*. The organism is found in many surface water sources (lakes, rivers, streams) and comes from human and animal wastes in the watershed. The risk of *Cryptosporidium* from drinking water in Milwaukee has been reduced to extremely low levels by an effective treatment combination including ozone disinfection, coagulation, sedimentation, biologically active filtration, and chloramine disinfection.

The Milwaukee Water Works provides a brochure based on EPA and CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium*. Obtain a copy from our Customer Service Center, (414) 286-2830, or at [milwaukee.gov/water/about/WaterQuality.htm](http://milwaukee.gov/water/about/WaterQuality.htm); scroll down to Resource Links, choose "Information for Persons with High Risk Immune Systems."

## **Lead and Copper**

Milwaukee's drinking water is clean and safe to drink. News about untreated water in Flint, Michigan has raised concerns about drinking water in other cities. Unlike Flint's water, Milwaukee's water meets all state and federal laws for water safety and quality. We regularly test the water to ensure this.

Lead is not found in Milwaukee's source water, Lake Michigan, and it is not found in our drinking water.

Years ago, lead was used in paint, plumbing, and other products. Lead can cause health problems if it builds up in your body. Children under the age of six or women who are pregnant or breastfeeding are at special risk. The most common source of lead is from paint in buildings built before 1978.

While lead is not found in Milwaukee's drinking water, lead may enter drinking water at your house or building if it dissolves from the water service line or internal plumbing, and fixtures made of lead or containing lead, especially when water stands unused for several hours. To control lead dissolving into the water, the Milwaukee Water Works treats the water with a compound that forms a protective coating inside pipes. We have provided this corrosion control since 1996.

Structures built before 1951 were likely constructed with service lines made of lead. The water service line connects the water main in the street to your property and is the responsibility of the property owner. Lead pipes are dull gray in color and are soft enough to be easily scratched with a house key. Also, a magnet will not stick to a lead pipe. A licensed plumber can determine if your service line and/or plumbing are made of lead and can replace them for you at your cost.

The amount of lead in drinking water will vary based on the plumbing in your building, how much water is used, and how often it is used.

**Properties most at risk of having lead in drinking water:**

- Approximately 70,000 structures in Milwaukee that were built before 1947 have service lines made of lead.
- About 1,000 structures built between 1947 and 1951 may have lead or copper service lines. To check if your property has a lead service line, call (414) 286-CITY.
- Buildings with internal plumbing made of lead.
- Buildings with faucets or fittings of brass which contain some lead. Plumbing and fixtures installed before January 1, 2014, or those purchased from sources outside of the United States, may contain lead. Since January 1, 2014, only lead-free fixtures and fittings are allowed to be installed or used to repair drinking water plumbing.
- Buildings with copper pipe and lead solder installed before 1987. Lead-based solder was banned for use after 1987.

**Easy steps to reduce the risk of lead in your drinking water**

There are three things you can do to reduce your exposure to lead in drinking water. These actions are particularly important if you have children under the age of six or women who are pregnant or breastfeeding living in your home.

**1. Flush your plumbing.** Before using tap water for drinking or cooking, flush your plumbing by running the cold water three minutes or longer until the water is noticeably colder. Do this if the water has been standing unused in your pipes for more than six hours, such as overnight or during the work day. It is safe to shower, wash laundry and flush the toilet if you have a lead service line. These activities help flush the pipes.

**2. Only drink and cook with cold water from the cold water tap.** Households with children under the age of six, or women who are pregnant or breastfeeding, should consider using bottled water or filtered tap water for formula, concentrated juices, cooking and drinking.

**3. Remove the screen and aerator from faucets, rinse out any debris, and re-attach.** Do this once a month. This will reduce the possibility that small particles that may contain lead could build up at your faucet.

**Other steps to consider:**

- Purchase a filtration system. Drinking water filtration systems or pour-through filters can reduce or eliminate lead. Look for products certified by NSF/ANSI under Standard 53 for removal of lead and follow the manufacturer's guidelines on installation and maintenance. Find a list of products at [milwaukee.gov/water](http://milwaukee.gov/water) or call (414) 286-2830.
- Replace your lead service line or interior plumbing. A licensed plumber can help you assess the cost and feasibility of replacing your lead service line or interior plumbing. If you decide to do this, please call the Milwaukee Water Works at (414) 286-3710 for more information.

- Have your water tested. The Milwaukee Water Works and the City of Milwaukee Health Department do not offer water testing. Find a list of laboratories where you can have your water tested for lead at [milwaukee.gov/water](http://milwaukee.gov/water) or call (414) 286-2830.

### **Consider a blood test for lead in young children**

No level of lead has been determined to be safe in the body. As a best practice, the City of Milwaukee Health Department recommends that all children are tested for lead by your health care provider three times before turning three. Children up to age six should have their blood tested for lead if there is no record of a previous test, if they live in a home built before 1978 with recent or ongoing renovation, or if they have a sibling or playmate who has lead poisoning.

**After any water utility work or internal plumbing work, it is important that you flush your plumbing.** Physical disturbance of the lead service line or lead piping by activities such as water main replacement, service line leaks, building plumbing repair, water meter replacement or main breaks may release lead into the water.

### **Here's how to flush your plumbing after work is completed:**

- Remove screens and aerators from the end of all faucets and rinse particles from them.
- Starting in the lowest level (basement) and working to the top floor, turn on the cold water.
- After the water runs for 5-10 minutes, start at the top floor and turn off the water, finishing in the basement. Re-attach the screens and aerators to the faucets. The cost to flush four taps for 10 minutes is about 16 cents.

For more information on lead and drinking water safety, visit: [Milwaukee.gov/water](http://Milwaukee.gov/water) and [Milwaukee.gov/health](http://Milwaukee.gov/health)

If you have questions about lead in drinking water, call Milwaukee Water Works Customer Service, (414) 286-2830. Non-emergency email: [watwebcs@milwaukee.gov](mailto:watwebcs@milwaukee.gov)

If you have questions about the health effects related to lead in drinking water, call the City of Milwaukee Health Department, (414) 286-3521.

### **Notice to Parents of Infants Six Months of Age or Younger**

*According to the CDC, the proper amount of fluoride from infancy and at all ages throughout life helps prevent and control tooth decay (cavities). Therefore, the Milwaukee Water Works, following public health recommendations, maintains a level of fluoride in our drinking water that is both safe and effective. Per Common Council File No. 120187 adopted on July 24, 2012, we are required to include the following advisory regarding fluoride and young infants in our annual water quality reports and on our website.*

The American Academy of Pediatrics recommends exclusive breastfeeding for the first six months of a child's life, followed by continued breastfeeding as complementary foods are introduced, for optimal short- and long-term health advantages. Go to <http://pediatrics.aappublications.org/content/129/3/e827> for more information.

As of August 31, 2012, Milwaukee water is fluoridated at a level not to exceed 0.7 mg/L. According to the CDC, for infants up to six months of age, if tap water is fluoridated or has substantial natural fluoride (0.7 mg/L or higher) and is being used to dilute infant formula, a parent may consider using a low-fluoride alternative water source. Bottled water known to be low in fluoride is labeled as purified, deionized, demineralized, distilled, or prepared by reverse osmosis. Ready-to-feed (no-mix) infant formula typically has little fluoride and may be preferable at least some of the time. If breastfeeding is not possible, parents should consult a pediatrician about an appropriate infant formula option. Parents should be aware that there may be an increased chance of mild dental fluorosis if the child is exclusively consuming infant formula reconstituted with fluoridated water. Dental fluorosis is a term that covers a range of visible changes to the enamel surface of the tooth. Go to [http://www.cdc.gov/fluoridation/safety/infant\\_formula.htm](http://www.cdc.gov/fluoridation/safety/infant_formula.htm) for more information on dental fluorosis and the use of fluoridated drinking water in infant formula.